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Discussion

Dr Steven W. Guyton *(Seattle, Wash).* Thank you, Dr Gavra, for an excellent presentation and for the opportunity to review your manuscript before the meeting.

Active endocarditis that cannot be managed with antibiotic therapy alone is a devastating problem, as you have so well illustrated. You might illustrate this as well by including a graph indicating the freedom from mortality and morbidity—reoperation, recurrent endocarditis, thromboembolism, stroke, heart block, renal failure, sternal infection, and others. I anticipate that close to 100% of your patients will show complications during your 10- to 15-year follow-up. I agree with your emphasis on aggressive débridement of all infected tissue and less emphasis on the type of prosthesis. The prostheses you used were approximately 2:1 mechanical versus bioprosthetic and then some homografts. Have you seen a difference in outcomes depending on your choice of prosthesis, and what is your preference at present?

Dr Gavra. I am not the senior surgeon, but I can assure you that Dr David's approach is to excise all infected tissues to allow implantation of a prosthetic valve in healthy and strong tissues. He believes that the outcomes for patients with paravalvular abscess is influenced more by the surgeon's ability to recognize and extirpate all infected tissue than by the type of prosthetic valve implanted.

Dr Guyton. Did you look at the outcomes, though, related to the type of prosthesis that was used as to whether your data showed any difference?

Dr Gavra. No.

Dr Guyton. Recurrent endocarditis treated medically had a dismal prognosis, with a 75% mortality reported in the manuscript. Homografts have been touted as more resistant to recurrent infection. Is this an argument for the use of homografts?

Dr Gavra. With respect to the patients who had recurrent endocarditis, I'd have to say that the 22 patients who were treated with antibiotics only were treated elsewhere, not in Toronto General Hospital and they didn't benefit from surgery. I would suppose this to be one of the reasons that mortality is so high for this subgroup of endocarditis.

Dr Guyton. Thank you for that clarification. Ten percent of your patients were operated on for large vegetations. This is the first time I have seen this as an indication for surgery from your group. Why were operations performed for vegetation size? I know my cardiologists get skittish about these vegetations, but I've not been convinced that operating for the size of vegetations is appropriate.

Dr Gavra. Because of fear of embolization, vegetations larger than 10 mm in diameter were considered an indication for surgery.

Dr Guyton. I think we might want to be very careful about using that as an indication for surgery. In the medical literature, there is encouragement for shorter durations of antibiotic treatment, which I have found disturbing in this population of patients given the consequences of treatment failure. I note that you reported freedom from recurrent endocarditis to be better after prosthetic valve endocarditis. Were these patients treated differently because they already had prosthetic valves, and what is your standard course of antibiotic therapy?

Dr Gavra. The patients in this study received intravenous antibiotics for a total of 6 weeks. Although my slide showed a lower risk of recurrent endocarditis among patients with prosthetic valve than in those with native valve endocarditis, the difference was not statistically significant.

Dr Guyton. In *S aureus* infection timing of operation is important. As a tertiary referral center, you did not always have control over when the operation occurred relative to the date of presentation. In analyzing the data, did you find a difference in outcomes depending on when the patient was operated on versus the time of presentation?

Dr Gavra. Although the overall mortality among patients with *S aureus* endocarditis was higher than that among those with other bacteria, I don't know whether timing of surgery played a role in the outcome.

Dr Guyton. Having that analysis might help us evaluate the data a little bit more extensively. Thank you for opportunity to review the manuscript and to discuss this presentation.

Dr Gavra. Thank you very much, Dr Guyton.